

Hereford. — The recommendation of his Royal Highness, Prince Albert, as president of the Society of Arts, to turn to account the fine green Irish marble which has hitherto lain so entirely fallow, has been so far acted on, that samples have been sent over for the official consideration of the society, who are desirous of applying it to various economical as well as ornamental purposes.

#### CUNDY'S PATENT VENTILATING STOVE.

Closer stoves, unless other provision be made for ventilation in the rooms heated by them, must necessarily produce very injurious effects. With an open fire-place there is always some ventilation, however partial and insufficient; but then we have cold drafts, and much waste of fuel. What we want is, an arrangement by which the vitiated air shall be removed, without waste of heat, and a proportional quantity of fresh air admitted at a higher temperature than the room is required to be of, so as to prevent cold currents.

The stove illustrated by the accompanying sectional diagrams appears to have considerable advantages in these respects. Its construction is very simple.

a.a.a.a. Show a fresh air channel, for admission of the external air.

b.b.b.b. Hot air chambers (formed with artificial stone, d.d.d.d.) through which the air passes into the room, and in its passage is heated without being injured.

c.c.c. The direction the smoke and vitiated air takes after it has passed through the fire and heated the artificial stone of the hot air chambers.

e. Blow pipe to preserve perfect combustion, placed immediately underneath the grating of fire-place.

A. and D. are regulators.

"The arrows show the way the external fresh air is admitted, next passing through the hot-air chambers into the room, and lastly taken out of the room through the fire and up the chimney."

We have had no satisfactory opportunity, with such weather as we now enjoy, of examining these stoves in active operation; but a consideration of the principles on which they are constructed, and the economies passed on them by the minister of St. Thomas's Church, Charter-house, where they have been used for some time, lead us to think that we are properly carrying out one of our chief objects by rendering them known to our readers.

St. Thomas's church contains about 200,000 cubic feet of air; it has 1,000 feet superficial of glass; the horizontal area is about 5,200 feet superficial; and this building is warmed by two of the stoves, 27 inches square.

A correspondent writing to us on the subject, says: "If we calculate that the two stoves will supply fresh air, and take air out of the church at the moderate rate of a gentle pleasant wind, then 1,200 cubic feet of air will be introduced and removed per minute. The average rate is only about a foot in five minutes, at which the whole body of air would travel if, by the ceiling falling, it was forced out at two openings, each a foot square, and the air passing through each opening at the rate of 600 cubic feet per minute.

This is so very slow, that the motion of air travelling at that rate could not be perceptible; while the fact is, that a sensible motion can be given to the air in the church supplied with air and ventilated by these two stoves.

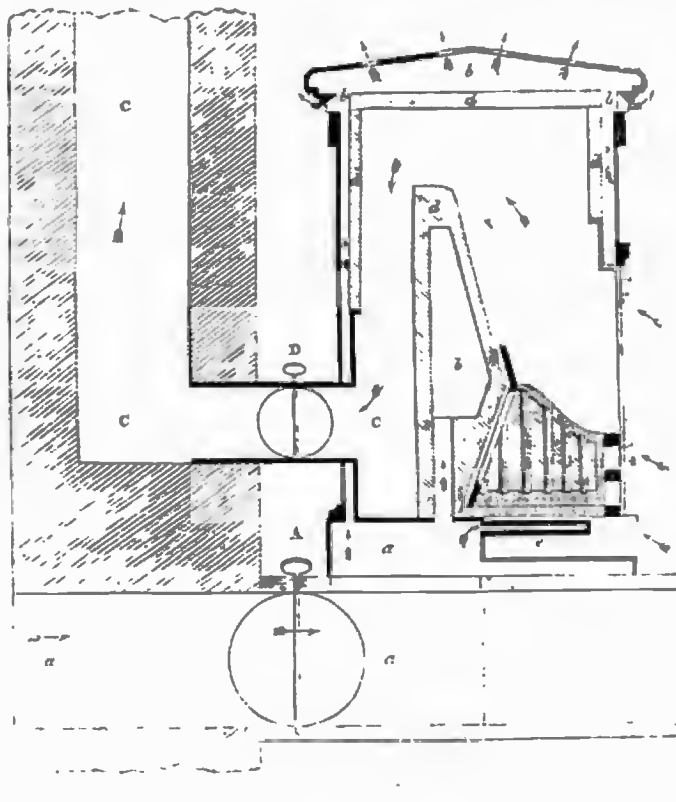
The quick motion which can be imparted to the air in the immediate neighbourhood of the stoves, by the ingress and egress of the air, and by the heat communicated to the air by radiation from the open fire-place, gives a rotary motion to the whole body of the air in the church, and which may be compared to the whirl given in water in a vessel into which water is running to at one place, and running out at another place at the same time. The cooling of the air by the walls and windows also assists the circulation; the air, as soon as it is cooled, descending.

All these motions combined soon mix the warmer and cooler portions of the air, and produce a temperature nearly the same.

While the most gentle and refreshing motion is perceptible, there is nothing like draft, and no sensation of cold air.

The ventilation is essentially downwards.

#### PATENT VENTILATING STOVE.



The hot air, at first leaving the stoves, rises rapidly in a column immediately to, and then spreading over, the whole space under the ceiling, while the air supplied to the fires is drawn from struts over the floor. The process of heated air ascending to the ceiling being continued, the warm air is brought down to the floor by the cooler air having been withdrawn by the continued operation of the fires.

In raising the temperature of the air ten degrees, 2,000 cubic feet of air would be expelled by expansion from this church.

Circulation of air may be produced by a difference of temperature. But to produce ventilation, to a difference in temperature, must be added a constant supply of fresh air, at a higher temperature than the room is required.

From a church or building of the magnitude of the one now referred to, when properly warmed and ventilated, we ought to be able to obtain data by which to determine the heat and air requisite to supply smaller buildings, dwelling-houses, and rooms in dwelling-houses, with the required warmth and ventilation, and to vary these according to season and circumstances."

#### ELECTRIC TELEGRAPH AND CLOCK.

EXPERIMENTS with a portion of the submarine telegraph at Portsmouth have clearly proved the possibility of annihilating distance in the transmission of intelligence between countries or lands divided by the sea.—Dr. Murray, of Hull, a correspondent of the *Mining Journal*, in noticing the damage done by the lightning to the telegraph just alluded to (which, however, was speedily remedied), recommends the application of a protective copper wire to every post through which the telegraphic wires are threaded along the line. Such wires running from about two or three inches above the post to a depth of eighteen inches below the surface of the earth would act, he observes, on the principle of the paraeslees; and he thinks that had paraeslees been attached to the various hot-houses, conservatories, &c., about

London, which were devastated in the late storm, the destruction of glass would have been inconsiderable, and perhaps entirely averted. But, admitting that the formation of hail is an electrical phenomenon, we confess we cannot precisely see how such "miniature lightning rods" even though twenty feet long, could have either prevented the formation of the hail, or have protected the glass from the percussive effects of the hail already formed.—In the preceding week's impression of the same journal, Dr. Murray gives a very interesting account of the electric telegraph and electric clock of Mr. Bain, of Edinburgh. The simplicity of the first, its chief recommendation, we ourselves have already remarked: Dr. Murray thinks it the *ne plus ultra* of all that is desirable. The electric clock, however, "is the great source of attraction." Nothing, he says, can be more satisfactory or complete. "Allowing for tear and wear of materials from friction, and the oxidizing influence of the atmosphere, the *perpetuum mobile* is here certainly realized. As long as the electricity of the earth continues—in other words, as long as the laws of nature last—so long will Mr. Bain's clock continue its oscillations, and register the transit of time;" and "it requires no prophet to foretell its entire ultimate adoption for public clocks. How singular and interesting the reflection," adds the doctor, "that by means of wires connecting the various public clocks of the metropolis with the main one, the pulse of the same *duplicate second* (for a double oscillation is registered) shall be *simultaneously* announced, however distant, or the index to the various rooms of a house beat in perfect unison with the parent one—verily, we live in an age of wonders! This wonderful power is entirely derived from the electricity of the earth—the pendulum conducts, and is the treasury of that power, and two simple wheels and their attachments, with the dead escapement, complete the magic machine—inimitable of the movements of the *mechanique celeste*." By an ingenious provision, Mr. Bain's electric clock, at the manufactory, distinguishes the gas light, which illuminates its dial, at half-past twelve precisely."